

make sure your calculator is in degree mode

LESSON 7.5

Practice

For use with pages 466-472



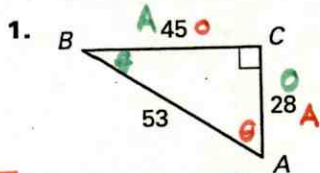
SA CH TA



Just divide! Find $\tan A$ and $\tan B$. Write each answer as a decimal rounded to four decimal places.

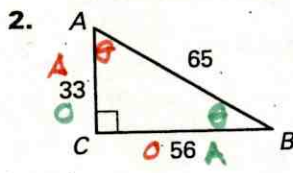
$\tan A = \frac{45}{28}$

$\tan A = 1.6071$



$\tan B = \frac{28}{45}$

$\tan B = 0.6222$

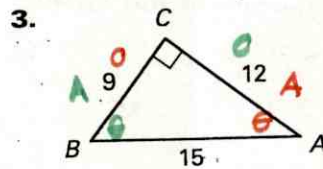


$\tan A = \frac{56}{33}$

$\tan A = 1.6970$

$\tan B = \frac{33}{56}$

$\tan B = 0.5893$



$\tan A = \frac{9}{12}$

$\tan A = 0.75$

$\tan B = \frac{12}{9}$

$\tan B = 1.3333$

Find the value of x to the nearest tenth.

$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$

4. $\tan(50) = \frac{13}{x}$
 $\tan(50)x = 13$
 $x = \frac{13}{\tan(50)}$
 $x = 10.9$

5. $\tan(24) = \frac{9}{x}$
 $x = \frac{9}{\tan(24)}$
 $x = 20.2$

6. $\tan(41) = \frac{x}{16}$
 $x = 16(\tan(41))$
 $x = 13.9$

7. $\tan(62) = \frac{x}{25}$
 $x = 25(\tan(62))$
 $x = 47$

8. $\tan(43) = \frac{29}{x}$
 $x = \frac{29}{\tan(43)}$
 $x = 31.1$

9. $\tan(72) = \frac{x}{36}$
 $x = 36(\tan(72))$
 $x = 110.8$

Find the value of x using the definition of tangent. Then find the value of x using the 45°-45°-90° Triangle Theorem or the 30°-60°-90° Triangle Theorem. Compare the results.

10. $\tan(45) = \frac{5\sqrt{2}}{x}$
 $x = 5\sqrt{2}$
 $x = 5\sqrt{2}$
 $x\sqrt{2} = 10$

11. $\tan(30) = \frac{4\sqrt{3}}{x}$
 $x = \frac{4\sqrt{3}}{\tan(30)}$
 $x = 4\sqrt{3}$
 $x\sqrt{3} = 4\sqrt{3}(\sqrt{3})$
 $2x = 12$
 $x = 12$

12. $\tan(60) = \frac{25\sqrt{3}}{x}$
 $x = \frac{25\sqrt{3}}{\tan(60)}$
 $x = 25$
 $x\sqrt{3} = 25\sqrt{3}$

LESSON
7.5

Practice *continued*
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For acute $\angle A$ of a right triangle, find $\tan A$ by using the $45^\circ\text{-}45^\circ\text{-}90^\circ$ Triangle Theorem or the $30^\circ\text{-}60^\circ\text{-}90^\circ$ Triangle Theorem.

13. $m\angle A = 30^\circ$

14. $m\angle A = 45^\circ$

15. $m\angle A = 60^\circ$

$\tan(\theta) = \frac{o}{A}$

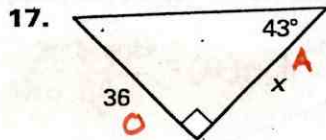
Use a tangent ratio to find the value of x . Round to the nearest tenth.



$\tan(64) = \frac{17}{x}$

$x = \frac{17}{\tan(64)}$

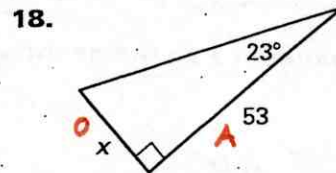
$x = 8.3$



$\tan(43) = \frac{36}{x}$

$x = \frac{36}{\tan(43)}$

$x = 38.6$

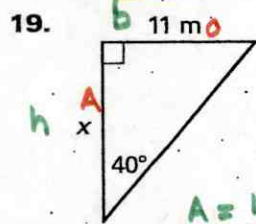


$\tan(23) = \frac{x}{53}$

$x = 53(\tan(23))$

$x = 22.5$

Find the area of the triangle. Round your answer to the nearest tenth.



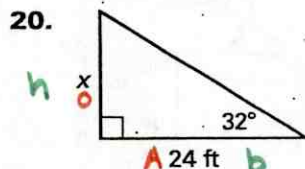
$\tan(40) = \frac{x}{11}$

$x = \frac{11}{\tan(40)}$

$x = 13.1$

$A = \frac{11(13.1)}{2}$

$A = 72.1 \text{ m}^2$



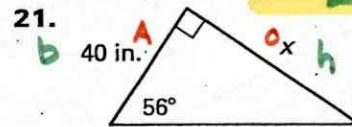
$\tan(32) = \frac{x}{24}$

$x = 24(\tan(32))$

$x = 15$

$A = \frac{24(15)}{2}$

$A = 180 \text{ ft}^2$



$\tan(56) = \frac{x}{40}$

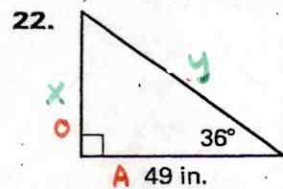
$x = 40(\tan(56))$

$x = 59.3$

$A = \frac{40(59.3)}{2}$

$A = 1186 \text{ in}^2$

Find the perimeter of the triangle. Round to the nearest tenth.



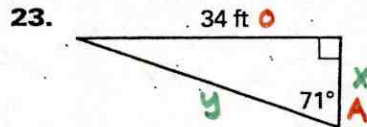
$\tan(36) = \frac{x}{49}$

$x = 35.6$

$P = 49 + 35.6 + 60.6$

$P = 145.2 \text{ in}$

$c^2 = a^2 + b^2$
 $y^2 = 49^2 + (35.6)^2$
 $y^2 = 3668.36$
 $y = 60.6$



$\tan(71) = \frac{34}{x}$

$x = 11.7$

$y^2 = 34^2 + (11.7)^2$

$y^2 = 1292.9$

$y = 36$

$P = 34 + 11.7 + 36$

$P = 81.7 \text{ ft}$



$\tan(44) = \frac{62}{x}$

$x = 64.2$

$y^2 = 62^2 + (64.2)^2$

$y^2 = 7945.6$

$y = 89.3$

$P = 62 + 64.2 + 89.3$

$P = 215.5 \text{ ft}$

LESSON 7.5 Practice *continued*
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- 25. Model Rockets** To calculate the height h reached by a model rocket, you move 100 feet from the launch point and record the angle of elevation θ to the rocket at its highest point. The values of θ for three flights are given below. Find the rocket's height to the nearest foot for the given θ in each flight.

a. $\theta = 77^\circ$ $\tan(77) = \frac{h}{100}$
 $\boxed{h = 433 \text{ ft}}$

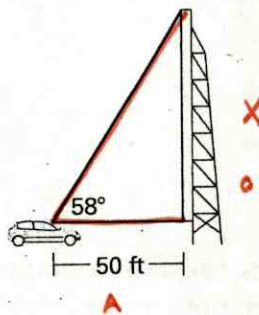
b. $\theta = 81^\circ$ $\tan(81) = \frac{h}{100}$
 $\boxed{h = 631 \text{ ft}}$

c. $\theta = 83^\circ$ $\tan(83) = \frac{h}{100}$
 $\boxed{h = 814 \text{ ft}}$

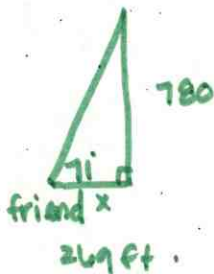
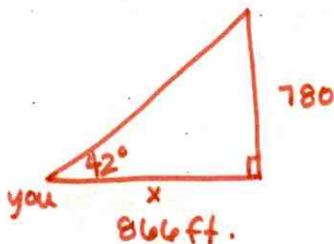
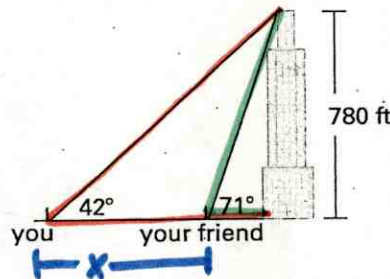


- 26. Drive-in Movie** You are 50 feet from the screen at a drive-in movie. Your eye is on a horizontal line with the bottom of the screen and the angle of elevation to the top of the screen is 58° . How tall is the screen?

$\tan(58) = \frac{x}{50}$
 $\boxed{x = 80 \text{ ft}}$



- 27. Skyscraper** You are a block away from a skyscraper that is 780 feet tall. Your friend is between the skyscraper and yourself. The angle of elevation from your position to the top of the skyscraper is 42° . The angle of elevation from your friend's position to the top of the skyscraper is 71° . To the nearest foot, how far are you from your friend?



$\tan(42) = \frac{780}{x}$
 $x = 866 \text{ ft}$

$\tan(71) = \frac{780}{x}$
 $x = 269 \text{ ft}$

$x = 866 - 269$
 $\boxed{x = 597 \text{ ft}}$